

AMENDMENTS TO THE SPECIFICATION

IN THE TITLE OF THE INVENTION:

Page 1

Please amend the title of the Specification as follows:

YOKE, ELECTROMAGNETIC ACTUATOR, AND STIRLING ENGINE

IN THE SPECIFICATION:

Page 1

Please amend the Specification on page 1 beginning at paragraph [0001] as follows:

[0001] The present invention relates to ~~a yoke forming a magnetic circuit, an electromagnetic actuator including a yoke forming a magnetic circuit, the aforementioned yoke, and a Stirling engine including the aforementioned electromagnetic actuator.~~

Page 3

Please amend the Specification on page 3 beginning at paragraph [0016 continuing onto page 4 paragraph [0020] as follows:

[0002] ~~To achieve the object described above, it is an object of the present invention to provides a yoke that is formed by sintering a soft magnetic iron powder and that is used for an electromagnetic actuator, including a notch portion for preventing occurrence of eddy current loss an electromagnetic actuator including: an outer yoke; an inner yoke that is formed by molding a soft magnetic iron powder and that is so arranged as to face an inside of the outer yoke; a coil portion that is provided at the outer yoke; a permanent magnet that reciprocates in accordance with a magnetic flux generated by the coil portion arranged between the outer yoke~~

and the inner yoke; and a reciprocator that supports the permanent magnet, in which the inner yoke is formed of a plurality of divisions formed axially and combined together.

[0003] The yoke in this invention denotes, not limited to inner yokes nor outer yokes, but all yokes commonly used for general linear actuators and This yoke is formed by means of sintering molding, compression molding, or the like performed on a soft magnetic iron powder, and is formed of a plurality of divisions formed axially and combined together. The aforementioned notch portion includes not only notches and grooves but also gaps between divisions. The aforementioned yoke includes those formed by being circumferentially divided and combined together into a cylindrical shape. This yoke permits favorably preventing the occurrence of eddy current loss and providing the actuator with high operation efficiencyWith this structure, when the inner yoke is long in the axial direction, by forming each of the divided portions, which are divided axially, as a small part, substantial location-dependent change in the magnetic property hardly occurs, thus permitting providing an electromagnetic actuator including an inner yoke with nearly uniform magnetic property accordingly.

[0004] In the structure described above, an example of the notch portion includes the one having one or a plurality of notches extended axially from one end surface toward another end surface thereof. A projection may be formed on one surface of the divided portion of the inner yoke structured as described above and a depression may be formed on another surface thereof with which depression the projection fits.

[0005] This structure permits favorably preventing the occurrence of eddy current loss and providing the actuator with high operation efficiency. permits easily locating and coupling together the divided yokes.

[0006] Further, an example of the inner yoke the one having one or a plurality of notches extended axially from one end surface to another end surface thereof additionally includes the one having one or a plurality of notches extended axially from said another end surface to said one end surface. This structure permits favorably preventing the occurrence of eddy current loss and providing the actuator with high operation efficiency, including a discontinuous portion for preventing occurrence of eddy current loss, the discontinuous portion having a notch extended axially from one end surface toward another end surface thereof.

Page 4

Please delete paragraphs [0022 through [0028] on page 4 as follows:

~~[0022]—In the structure described above, an example of the notch portion includes the one having one or a plurality of grooves (i.e., grooves having a depth in the direction orthogonal to the axial center) extended axially on the outer side surface and (or) the inner side surface of the yoke.~~

~~[0023]—An example of the yoke according to the invention includes the one which is divided circumferentially into a plurality of blocks, in which the adjacent blocks are connected together with an insulating material sandwiched therebetween and the connection portion where the insulating material is sandwiched serves as the notch portion.~~

~~[0024]—With this structure, since circumferentially dividing a yoke of a large diameter permits fabricating each of the divided portions as a small part, substantial location-dependent change in the magnetic property hardly occurs, thus permitting providing a yoke with nearly uniform magnetic property.~~

~~[0025]—An example of the yoke structured as described above includes the one which is divided axially into plurality of divisions.~~

~~[0026]—With this structure, when the yoke is long in the axial direction, dividing it axially permits fabricating each of the divided portions as a small part, so that substantial location-dependent change in the magnetic property hardly occurs, thus permitting providing a yoke with nearly uniform magnetic property.~~

~~[0027]—To achieve the object described above, the present invention provides an electromagnetic actuator including: an outer yoke; an inner yoke that is formed by molding a soft magnetic iron powder and that is so arranged as to face the inside of the outer yoke; a coil portion that is provided at the outer yoke; a permanent magnet that reciprocates in accordance with a magnetic flux generated by the coil portion arranged between the outer yoke and the inner yoke; and a movable element that supports the permanent magnet, in which the yoke described above is adopted as the outer yoke and (or) the inner yoke.~~

~~{0028}—This structure permits favorably preventing the occurrence of eddy current loss and providing the actuator with high operation efficiency.~~